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(54) Title of the invention: PROGRAM RESERVATION METHOD

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(72) Inventor: Mitsunobu Enomoto, Sanyo Electric Co., Ltd. 2-18 Keihan Hondori, Moriguchi-shi, Osaka

(71) Applicant: Sanyo Electric Co., Ltd. 2-18 Keihan Hondori, Moriguchi-shi, Osaka

(74) Agent: Patent Attorney Takutsugu Nishino And 2 others

SPECIFICATION

1. Title of the Invention

PROGRAM RESERVATION METHOD

2. Scope of Patent Claims

(1) A program reservation method in which, in a video tape recorder which imports (a) a program table of programs scheduled to be broadcast contained in a teletext signal superimposed in the vertical blanking interval of a television video signal and (b) program reservation data corresponding to each item on this program table,

when an item from said program table displayed on a screen is selected, program reservation data corresponding to the selected item is displayed using characters on the same screen as the display screen of said program table.

3. Detailed Description of the Invention

(A) Industrial Field of Application

The present invention relates to a video tape recorder (VTR) capable of receiving teletext broadcasts. In particular, it relates to a program reservation method for a video tape recorder in which multiple types of character data indicating information such as the broadcast start times and titles of programs scheduled to be broadcast contained in teletext data can be imported.

(B) Prior Art

Conventionally, when making recording reservation with a VTR, it was necessary to input items such as the recording start time, stop time, and channel number one by one by operating keys. Therefore, the operating procedure became complex due to the large number of key operations required to make a recording reservation, and this gave rise to situations in which the desired broadcast program could not be recorded due to input errors. In recent years, however, some broadcast stations have sent information such as the broadcast start times and titles of programs scheduled to be broadcast (program table) as a part of teletext broadcasts, and an example of a method for recording using this program table is proposed in West German Published Patent Specification No. 333508.

As shown in Fig. 4, this is a method in which a program table in which the broadcast start times and titles of programs scheduled to be broadcast sent from the broadcast station is displayed on a display screen (100), and the user reserves a program by designating the desired program to be reserved with a cursor (200)

and extracts the data required for recording reservation while looking at this display. With this method, the number of key operations required for program reservation can be dramatically reduced, and program reservation can be accomplished by displaying the program table on the screen and looking at the titles of the programs, so input errors can also be reduced.

(C) PROBLEM TO BE SOLVED BY THE INVENTION

However, as shown in Fig. 4, the display format of the program table sent from the broadcast station on the receiver side was a simplified format such as "12:00 NEWS," "12:15 MUSIC SHOW" or a format unique to the broadcast station. Therefore, even if "12:00 NEWS" was designated with the cursor (2) as shown in the figure and the recording reservation key is depressed, for example, although the user could see that the news starting at 12:00 was reserved, it was not possible to know information such as detailed reservation data (recording reservation date, channel, and recording start and stop times) from the display screen, which was extremely inconvenient.

Thus, the present invention aims to resolve this shortcoming.

(D) MEANS FOR SOLVING THE PROBLEM

With the program reservation method of the present invention, in order to solve the problem described above, in a video tape recorder which imports (a) a program table of programs scheduled to be broadcast contained in a teletext signal superimposed in the vertical blanking interval of a television video signal and (b) program reservation data corresponding to each item on this program table,

when an item from the program table displayed on a screen is selected, program reservation data corresponding to the selected item is displayed using characters on the same screen as the display screen of the program table.

(E) OPERATION

With the means described above, program reservation data corresponding to the item on the program table selected with a cursor, for example, on the screen can be confirmed as characters.

(F) EMBODIMENT

An embodiment of the present invention will be described hereafter with reference to Fig. 1 through 3.

Fig. 1 shows a schematic block diagram of a VTR to which the present invention is applied. A broadcast signal captured by an antenna (1) is received and selected with a tuner (2), and this is signal-processed by a video signal processing circuit (4) through a video intermediate frequency and detection circuit (IF-DET) (3) and supplied to a display switching circuit (5). This display switching circuit (5) selects and outputs a video signal (b) from the video signal processing circuit (4) or a text signal (c) from a character generator (7) depending on a switching signal (a) from a teletext controller (6) made of a microcomputer.

Meanwhile, a teletext signal multiplexed in the vertical blanking interval of the video signals obtained from IF-DET (3) is extracted by a teletext signal extraction circuit (8) and is supplied to a page selection circuit (9). This page selection circuit (9) extracts only the page number data indicated by teletext controller (6) and supplies it to image memory (10). Image memory (10) writes the image data of the specified page number selected by this page selection circuit (9) in accordance with a control signal from teletext controller (6). After the data written to this image memory (10) is read out in accordance with a control signal from teletext controller (6), it is converted into a text signal by character generator (7).

As described above, teletext controller (6) can thus control the display of television images and teletext images by sending commands to page selection circuit (9) and display switching circuit (5) and can display any characters by writing data directly to image memory (10).

Symbol (11) is a key input part, and when the user operates this key input part (11), teletext controller (6) performs processing corresponding to this key operation. In addition, work memory (12) is used when teletext controller (6) performs program reservation processing, for example.

To explain program reservation recording using teletext controller (6), when the recording reservation key is pressed after the screen of teletext of the prescribed page number is displayed on the display based on the operation of the key input part (11) by the user and the desired program is selected by

moving a cursor, program reservation data corresponding to the selected program is written to reservation data memory (19). The reservation data written to reservation data memory (19) is read out by a timer reservation controller (13) made of a microcomputer. A VPS (Video Program System) signal multiplexed in the vertical blanking interval of the video signals obtained from IF-DET (3) is extracted by a VPS signal extraction circuit (14) and is supplied to timer reservation controller (13), and time data from a clock circuit (15) is provided to timer reservation controller (13). Timer reservation controller (13) compares this time data or VPS signal (if one exists) with the reservation data, and when both pieces of data are in agreement, it controls a tuning circuit (16) to tune to the prescribed TV program using tuner (2) and sends a recording command to a system controller (17). When system controller (17) receives this recording command, it controls a recording circuit (18) and recording is begun. When the recording stop time is reached and recording ends, the program reservation data written in reservation data memory (19) is deleted.

Next, the operation of teletext controller (6) when making a recording reservation for programs sent in a teletext broadcast will be described in further detail with reference to Fig. 2 and 3 along with Fig. 1.

First, when the user selects a page on the teletext screen by pressing a program reservation display key not shown in the figures, the data on the screen of the selected page is imported to screen memory (10), but teletext controller (6) first assesses whether the screen data of this prescribed page has been completely imported (Step ①). When the importing of screen data to screen memory (10) is complete, controller (6) writes this screen data (Step ②), analyzes the data, extracts recording reservation data [Pos. (channel position), Date (date), Start (recording start time), Stop (recording stop time)], and writes it to work memory (12) (Step ③).

When one screen's worth of reservation data of this selected page is written to work memory (12), controller (6) displays the program table (Fig. 2 (A)) and the content of the program reservation data (Fig. 2 (B)) on the same screen (100) as the screen on which this program table is displayed by writing the first piece of program reservation data written to work memory (12) in screen memory (10) as character data. At this time, a cursor (20) is displayed in the position of the item on the program table corresponding to the program reservation data displayed on the program table (Fig. 2 (A)), and as a result, the presently selected program and the program reservation data are coordinated and communicated to the user (Step ⑤).

When it is assessed that the key that is inputted next is the cursor movement key in Step ⑥, the program reservation data corresponding to the item of the program designated by the movement of this cursor (20) (for example, "12:15 MUSIC SHOW") is read out from work memory (12) and is written in screen memory (10 as character data. As a result, this program reservation data is displayed in region (B) of the screen shown in Fig. 2 (Step ⑧), and cursor (20) is displayed in the position of this item ("12:15 MUSIC SHOW") corresponding to the program reservation data displayed in this region (B) in Step ⑨.

When it is assessed in Step ⑦ that the inputted key is not the cursor movement key, it is assessed in Step ⑩ whether the input came from the reservation execute key. If it is assessed that the key input came from the reservation execute key, the program reservation data of the item of the program designated by cursor (20) -- in other words, the program reservation data displayed in region (B) of the screen -- is written in reservation data memory (19) (Step [11]) and the sequence ends.

The operations following the writing of program reservation data to reservation data memory (19) are as described previously, and program recording reservation using teletext broadcasts is executed with the series of operations described above.

(G) EFFECT OF THE INVENTION

The present invention has the effect that each time an item on the program table sent in a teletext broadcast is designated, program reservation data corresponding to that item can

be confirmed on the screen with characters.

4. BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram of a video tape recorder to which the present invention is applied. Fig. 2 is a diagram showing the teletext screen displayed by this video tape recorder. Fig. 3 shows a flowchart for explaining the operation of the teletext controller. Fig. 4 is a diagram showing the teletext screen displayed by a conventional video tape recorder.

(6)…teletext recorder, (10)…screen memory, (11)…key input part, (19)…reservation data memory, (100)…screen.

Applicant Sanyo Electric Co., Ltd.
Agent Patent Attorney Takutsugu Nishino (and 2 others)

[see source for figures]

Fig. 1
4 video signal processing
5 display switching
6 teletext controller
7 character generator
8 teletext signal extraction
9 page selection
10 screen memory
11 key input part
12 work memory
13 timer reservation controller
14 VPS extraction
15 clock
16 tuning circuit
17 system controller
18 recording circuit
19 reservation data memory

Fig. 2

Fig. 3
1 Is screen data completely imported?
2 Write screen data.
3 Extract recording reservation data and write it in the work memory.
4 Display the content of the first piece of recording reservation data.
5 Display the cursor at the corresponding position on the screen.
6 Is there key input?
7 Cursor movement key?
8 Display the content of the next piece of recording reservation data.
9 Display the cursor at the corresponding position on the screen.
10 Reservation execute key?
11 Write the recording reservation data in the reservation data memory.

Fig. 4

能できるという効果がある。

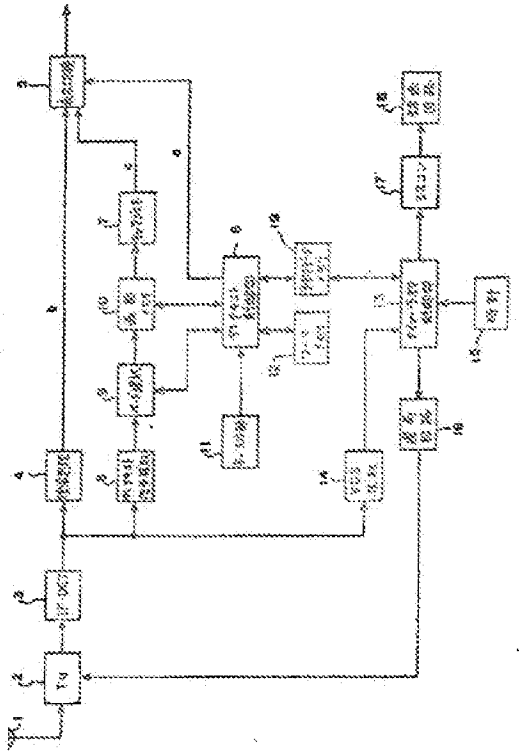
4. 図面の簡単な説明

第1図は本発明を実施したビデオテープレコーダのブロック図、第2図はそれによって表示されるテレテキスト画面を示す図、第3図はテレテキスト制御部の動作説明のためのフローチャートを示す図、第4図は従来のビデオテープレコーダによって表示されるテレテキスト画面を示す図である。

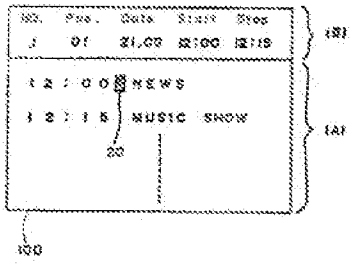
(6)…テレテキスト制御部、(10)…画面メモリ、(11)…キー入力部、(19)…予約データメモリ、(100)…画面。

出願人　三洋電機株式会社
代理人　弁理士　西野卓嗣（外2名）

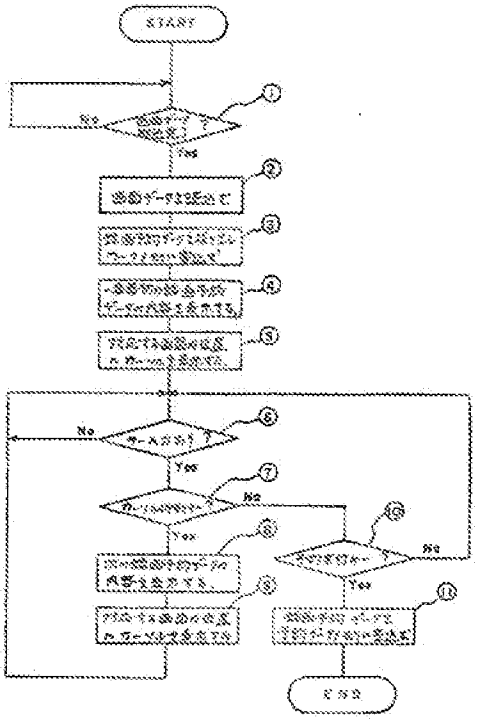
第1図



第2図



第3図



第4図